

# Yibo Zhu

Microsoft Research  
One Microsoft Way  
Redmond, WA 98052

[yibzh@microsoft.com](mailto:yibzh@microsoft.com)  
<http://yibozhu.com>  
(805) 886-2536

## Work Experience

Microsoft Research, Redmond, WA

8/16 – present

Researcher, Mobility and Networking Research Group

- My research interests include Datacenter Networks and Wireless Networks. I am particularly interested in designing network systems driven by real-world needs and challenges. My research focuses on the performance and management of large-scale networks. I explore new network technologies, such as 60GHz wireless, Remote Direct Memory Access (RDMA) and programmable network switches, and design novel systems to exploit their full potentials.

## Education

University of California, Santa Barbara, Santa Barbara, CA

2011 – 2016

Ph.D., Computer Science

Advisor: Prof. Heather Zheng and Prof. Ben Y. Zhao

Tsinghua University, Beijing, China

2007 - 2011

Bachelor of Electronic Engineering (with distinction among all college students in Beijing)

Stanford University, Stanford, CA

2010

Exchange student, Undergraduate Visit and Research program

## Publications

- [1] Gaoxiong Zeng, Wei Bai, Ge Chen, Kai Chen, Dongsu Han, **Yibo Zhu**, Combining ECN and RTT for Datacenter Transport. *To appear in ACM APNet'17*.
- [2] **Yibo Zhu**, Monia Ghobadi, Vishal Misra, Jitendra Padhye, ECN or Delay: Lessons Learnt from Analysis of DCQCN and TIMELY. *In Proc. of ACM CoNEXT'16*.
- [3] Yanzi Zhu, **Yibo Zhu**, Ana Nika, Ben Y. Zhao, Haitao Zheng, Trimming the Smartphone Network Stack. *In Proc. of ACM HotNets'16*.
- [4] Shuihai Hu, **Yibo Zhu**, Peng Cheng, Chuanxiong Guo, Kun Tan, Jitendra Padhye, Kai Chen, Deadlocks in Datacenter Networks: Why Do They Form, and How to Avoid Them. *In Proc. of ACM HotNets'16*.
- [5] Ana Nika, Zhijing Li, Yanzi Zhu, **Yibo Zhu**, Ben Y. Zhao, Xia Zhou and Haitao Zheng, Empirical Validation of Commodity Spectrum Monitoring. *In Proc. of ACM SenSys'16*.
- [6] Yanzi Zhu, **Yibo Zhu**, Ben Y. Zhao and Haitao Zheng, Reusing 60GHz Radios for Mobile Radar Imaging. *In Proc. of ACM MobiCom 2015*.
- [7] **Yibo Zhu**, Daniel Firestone, Chuanxiong Guo, Jitendra Padhye, Shachar Raindel, Ming Zhang, Yehonatan Liron, Haggai Eran, Mohamad Haj Yahia and Marina Lipshteyn, Congestion Control for Large-scale RDMA Deployments. *In Proc. of ACM SIGCOMM 2015*.
- [8] **Yibo Zhu**, Nanxi Kang, Jiabin Cao, Albert Greenberg, Guohan Lu, Ratul Mahajan, Dave Maltz, Lihua Yuan, Ming Zhang, Haitao Zheng and Ben Zhao, Packet-Level Telemetry in Large Datacenter Networks. *In Proc. of ACM SIGCOMM 2015*.
- [9] Ana Nika, **Yibo Zhu**, Ning Ding, Abhilash Jindal, Y. Charlie Hu, Xia Zhou, Ben Zhao and Haitao Zheng, Energy and Performance of Smartphone Radio Bundling in Outdoor Environments. *In Proc. of WWW 2015*.
- [10] **Yibo Zhu**, Yanzi Zhu, Zengbin Zhang, Ben Y. Zhao and Haitao Zheng, 60GHz Mobile Imaging Radar. *In Proc. of ACM HotMobile 2015*.
- [11] **Yibo Zhu**, Zengbin Zhang, Zhinus Marzi, Chris Nelson, Upamanyu Madhow, Ben Y. Zhao and Haitao Zheng, Demystifying 60GHz Outdoor Picocells. *In Proc. of ACM MobiCom 2014*.

- [12] **Yibo Zhu**, Xia Zhou, Zengbin Zhang, Lin Zhou, Amin Vahdat, Ben Y. Zhao and Haitao Zheng, Cutting the Cord: A Robust Wireless Facilities Network for Data Centers. *In Proc. of ACM MobiCom 2014*.
- [13] Jiaxin Cao, Chuanxiong Guo, Guohan Lu, Yongqiang Xiong, Yixin Zheng, Yongguang Zhang, **Yibo Zhu**, Chen Chen and Ye Tian, *Datacast*: A Scalable and Efficient Reliable Group Data Delivery Service for Data Centers. *In IEEE JSAC*, 31(12):2632-2645, 2013.
- [14] Jiaxin Cao, Chuanxiong Guo, Guohan Lu, Yongqiang Xiong, Yixin Zheng, Yongguang Zhang, **Yibo Zhu** and Chen Chen, *Datacast*: A Scalable and Efficient Reliable Group Data Delivery Service for Data Centers. *In Proc. of ACM CoNEXT 2012*.
- [15] Xia Zhou, Zengbin Zhang, **Yibo Zhu**, Yubo Li, Saipriya Kumar, Amin Vahdat, Haitao Zheng and Ben Y. Zhao, Mirror Mirror on the Ceiling: Flexible Wireless Links for Data Centers. *In Proc. of ACM SIGCOMM 2012*.
- [16] Gang Wang, Christo Wilson, Xiaohan Zhao, **Yibo Zhu**, Manish Mohanlal, Haitao Zheng and Ben Y. Zhao, Serf and Turf: Crowdturfing for Fun and Profit. *In Proc. of WWW 2012*.
- [17] **Yibo Zhu**, Yang Chen, Zengbin Zhang, Xiaoming Fu, Dan Li, Beixing Deng, Xing Li. Taming the Triangle Inequality Violations with Network Coordinate System on Real Internet. *In Proc. of ReArch'10 held in conjunction with CoNEXT'10*.

## Academic Experiences

**UCSB SAND Laboratory**, Santa Barbara, CA 9/11 – 6/16

- Designed new wireless primitives for augmenting bandwidth and building facilities networks in datacenters. They provide on-demand bandwidth allocation and good robustness by leveraging the flexibility and directionality of 60GHz links.
- Explored the feasibility of using 60GHz in cellular network and mobile sensing for orders of magnitude performance gain over traditional WiFi/LTE-based approaches.
- Measured and analyzed malicious crowdsourcing systems targeting today's online social networks.

**Tsinghua University NGN Laboratory**, Beijing, China 2/09 – 7/11

- Worked with Prof. Xing Li and Prof. Beixing Deng. Designed and implemented *Toread*, a decentralized network-coordinate system on *PlanetLab*. Project homepage: <http://code.google.com/p/toread>.

## Industrial Experiences

**Microsoft Research**, Redmond, WA 6/15 – 9/15

*Research Intern, Mobility and Networking Research Group*

- Worked with Dr. Ming Zhang and Dr. Jitu Padhye. Designed Switch Abstraction Interface (SAI), one of the leading cross-ASIC switch programming interfaces. Implemented Azure Cloud Switch (ACS) using SAI. GitHub: <https://github.com/opencomputeproject/OCP-Networking-Project-Community-Contributions>.

**Microsoft Research**, Redmond, WA 6/14 – 9/14

*Research Intern, Mobility and Networking Research Group*

- Worked with Dr. Ming Zhang and Dr. Ratul Mahajan. Designed and implemented a novel trace collection primitive for datacenters. Deployed in Microsoft Azure datacenters and published a paper in SIGCOMM'15.

**Microsoft Research**, Redmond, WA 6/13 – 9/13

*Research Intern, Mobility and Networking Research Group*

- Worked with Dr. Jitu Padhye and Dr. Ming Zhang. Designed and evaluated protocols for the first large-scale RDMA deployment in Microsoft Azure datacenters. Deployed and published a paper in SIGCOMM'15.

**Microsoft Research Asia**, Beijing, China 9/10 – 3/11

*Research Intern, Wireless and Networking Group*

- Worked with Dr. Chuanxiong Guo. Designed and implemented DataCast, a reliable group data delivery system for datacenters.

## Awards

Microsoft Research Fellowship (2015): annually awarded to 12 Ph.D. students in North America.

UCSB Holbrook Fellowship (2011): annually awarded to 6 Ph.D. freshmen in UCSB.

Student Travel Grant, ICNP'10, NSDI'12, DySPAN'12, HotMobile'15

### Pre-graduate school awards:

Graduate with distinction among all college students in Beijing city (2011)  
Chinese National Scholarship (2008-2010): top 3% students of Tsinghua University  
1<sup>st</sup> Place, Programming Competition in Department of EE, Tsinghua University (2008)  
Golden Medal in 22th Chinese Mathematical Olympiad (2007): top 30 of mainland China

## Selected Press

- [1] Microsoft Azure Cloud Switch Is A Cross-Platform Linux-Based Operating System. Tech Times, September 20, 2015.
- [2] Microsoft demonstrates its Linux-based Azure Cloud Switch operating system. ZDNet, September 18, 2015.
- [3] Going wireless in the data center. ComputerWorld, May 7, 2012.
- [4] Bouncing Data. MIT Technology Review, February 21, 2012.
- [5] A Wireless Road Around Data Traffic Jams. New York Times, January 14, 2012.
- [6] Speeding up the Internet by bouncing data off the ceiling. ExtremeTech, December 20, 2011.
- [7] Million Dollar Crowdfunding Industry Dupes Social Networks, SlashDot, December 13, 2011.
- [8] Hidden Industry Dupes Social Media Users, MIT Technology Review, December 12, 2011.

## Talks

- [1] ECN or Delay: Lessons Learnt from Analysis of DCQCN and TIMELY  
[December 2016] *CoNEXT'16, Irvine, USA*
- [2] Congestion Control for Large-scale RDMA Deployments.  
[December 2015] *Google Networking Team, Mountain View, USA.*  
[August 2015] *SIGCOMM'15, London, U.K.*  
[September 2013] *Microsoft Azure Networking Team, Redmond, USA.*
- [3] Packet-Level Telemetry in Large Datacenter Networks.  
[December 2015] *Google Networking Team, Mountain View, USA.*  
[August 2015] *SIGCOMM'15, London, U.K.*
- [4] 60GHz Mobile Imaging Radar.  
[February 2015] *HotMobile'15, Santa Fe, USA.*
- [5] Cutting the Cord: A Robust Wireless Facilities Network for Data Centers.  
[September 2014] *MobiCom'14, Maui, USA.*
- [6] Demystifying 60GHz Outdoor Picocells.  
[September 2014] *MobiCom'14, Maui, USA.*
- [7] Taming the Triangle Inequality Violations with Network Coordinate System on Real Internet.  
[November 2010] *ReArch'10, held in conjunction with CoNEXT'10, Philadelphia, USA.*

## Teaching

- [1] CS276, Graduate Networking, *Grader*, UCSB, 2012.
- [2] CS176B, Undergraduate Advanced Networking, *Teaching Assistant*, UCSB, 2012.
- [3] CS176A, Undergraduate Networking, *Teaching Assistant*, UCSB, 2011.

## Professional Activities

- [1] SIGCOMM'17 KBNets Workshop, Co-chair, 2017
- [2] IEEE/ACM Transactions on Networking (ToN), Reviewer, 2016, 2017
- [3] IEEE Transactions on Network and Service Management (TNSM), Reviewer, 2016
- [4] IEEE Wireless Communications Letters, Reviewer, 2016
- [5] Springer Journal of Network and Systems Management (JONS), Reviewer, 2016
- [6] Transactions on Emerging Telecommunications Technologies (ETT), Reviewer, 2016
- [7] MobiCom'15 S3 workshop, TPC, 2015.
- [8] Elsevier Journal of Parallel and Distributed Computing (JPDC), Reviewer, 2015, 2016.
- [9] IEEE Transactions on Mobile Computing (TMC), Reviewer, 2015.
- [10] IEEE Transactions on Communications (TCOM), Reviewer, 2014, 2015.